REMARKS

Claim 124 has been cancelled. Claims 88, 92-95, 97-121, and 123 remain pending in the present application.

Claims 88, 92-95, 97-100, 105, 107-118 and 123 stand rejected under 35 U.S.C. § 103(a) over Stone (U.S. Patent No. 5,770,476) in view of Jacobs et al. (U.S. Patent No. 4,811,082) in further view of Akram et al. (U.S. Patent No. 6,529,027 B1). Reconsideration and withdrawal of this rejection is respectfully requested.

Claim 88 recites, a process for forming an interposer element for use as a chip carrier comprising the steps of providing an insulating layer on at least one surface of a silicon substrate; and processing said insulating layer to produce at least one passive circuit element on or within said insulating layer, said at least one passive circuit element being separated from said silicon substrate by a portion of said insulating layer, said portion of said insulating layer having a thickness such that said at least one passive circuit element is electrically shielded from said silicon substrate, solder bonding at least one integrated circuit chip to said interposer element, by forming a plurality of individual solder ball leads, wherein two or more of said individual solder ball leads use differing types of solder having differing melting points, such that said at least one integrated circuit chip is electrically connected to said at least one passive circuit element; and forming a metallization pattern on or within said insulating layer, said metallization pattern being connected with said at least one passive circuit element.

The device of Stone discloses an interposer that provides the function of passive electronic components in circuit boards or cards. The device of Stone teaches the use of plated through holes 5 for electrically connecting components to various conductive planes. The Office Action acknowledges that Stone fails to teach or suggest an insulating layer on at least one silicon substrate; wherein the passive circuit element is being separated from the silicon substrate by a portion of the insulating layer; wherein two or more of the individual solder ball leads use different types of solder having differing melting points, and a portion of the insulating layer having a thickness such that the passive circuit element is electrically

shielded from the silicon substrate, as taught in claim 88. In order to overcome these deficiencies in Stone, the Office Action relies on Jacobs.

The device of Jacobs discloses a integrated circuit packaging structure which provides high circuit density, high speed characteristics of wafer scale integration, reduced power requirements, discrete semiconductor segments, low electrical noise levels and thermal expansion matching between the discrete semiconductor segments and the substrate.

The device of Jacobs fails to teach or suggest the process as taught by claim 88. Instead Jacobs teaches that when an interposer uses a silicon substrate, "the power and signal feed-throughs 16, 24 described hereinafter are required because signals would normally attenuate when traveling through a metal via in a semiconductor body." (column 11 lines 7-13). Thus in light of the requirement of Jacobs, even if one accepts *arguendo* that Stone may be combined with Jacobs, the proposed combination does not teach or suggest the invention as claimed. With such a requirement in Jacobs, there would be no motivation to make the suggested combination of Stone and Jacobs.

The device of Jacobs also teaches, planar thin film capacitors integral with the package which decouple the power supply at individual vias 18 to any of the power planes in the package. (column 11 lines 56-58). Thus in light of the requirement of Jacobs, even if one accepts *arguendo* that Stone may be combined with Jacobs, the proposed combination does not teach or suggest the invention as claimed. In addition, with such a requirement, there would be no motivation to make the suggested combination of Stone and Jacobs.

The Office Action acknowledges that Stone and Jacobs fail to teach or suggest two or more individual solder ball leads which use differing types of solder having differing melting points. In order to overcome this deficiency, the Office Action relies on Akram. However, Akram is not a proper reference against the present application because the present application is a divisional application with a domestic priority date of February 1,

1999. Therefore, for at least the reasons given above, the rejection of claim 88 under 35 U.S.C. § 103(a) should be withdrawn.

Claims 92-95, 97-100, 105, 107-118 and 123 depend, directly or indirectly, from claim 88. Accordingly, the rejection of claims 92-95, 97-100, 105, 107-118 and 123 under 35 U.S.C. § 103(a) should be withdrawn for at least the reasons given above with respect to claim 88.

Claim 106 stands rejected under 35 U.S.C. 103(a) over Stone and Jacobs (and presumably Akram; see rejection of claim 88) in further view of Yamazaki (U.S. Patent No. 6,002,161). Claims 101-104 stand rejected under 35 U.S.C. 103(a) over Stone and Jacobs in further view of Farooq et al. (U.S. Patent No. 5,912,044). Claims 119-121 stand rejected under 35 U.S.C. 103(a) over Stone, Jacobs and Yamazaki in further view of Solberg (U.S. Patent No. 6,121,676). Reconsideration and withdrawal of these rejections are respectfully requested.

Claims 101-104, 106, and 119-121 depend, directly or indirectly, from claim 88 and are allowable over Stone, Jacobs, Akram, Yamazaki, Farooq and Solberg for the reasons mentioned above with respect to claim 88. Accordingly, the rejection of claims 101-104, 106, and 119-121 under 35 U.S.C. § 103(a) should be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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Respectfully submitted,

By_____

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